

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Previously Presented) A piezoelectric vibration piece, comprising:
a pair of vibration arms that are formed of a piezoelectric material and extend in a horizontal direction from a base;
a groove with a bottom that is provided in a length direction of each of the vibration arms; and
a support member that is provided to cross the groove in a width direction to integrally connect portions of the vibration arm separated by the groove in the width direction.

2. (Previously Presented) The piezoelectric vibration piece according to Claim 1, wherein an integral section of the support member is integrated with the bottom of the groove, and the integral section is thicker than at least an end section of the support member located on an opening side of the groove.

3. (Previously Presented) The piezoelectric vibration piece according to Claim 1, wherein each of the vibration arms includes a surface side and a back side opposite the surface side, and the groove is provided in each of the surface side and the back side of each of the vibration arms.

4. (Cancelled)

5. (Previously Presented) The piezoelectric vibration piece according to Claim 1, wherein each of the vibration arms has an arm width in a range from 50 μm to 150 μm , and a depth of the groove is at least 30 percent or more, but less than 50 percent of a thickness of each of the vibration arms.

6. (Previously Presented) The piezoelectric vibration piece according to Claim 1, wherein a width of the groove provided in each of the vibration arms is at least 40 percent of an arm width of the corresponding vibration arm.

7. (Previously Presented) The piezoelectric vibration piece according to Claim 6, wherein the width of the groove provided in each of the vibration arms is at least 70 percent of the arm width of the corresponding vibration arm.

8. (Previously Presented) A piezoelectric device accommodating a piezoelectric vibration piece, the piezoelectric vibration piece comprising:

a pair of vibration arms extending in a horizontal direction from a base;

a groove with a bottom that is provided in each of the vibration arms, and extends in a length direction of the corresponding vibration arm; and

a support member crossing the groove in a width direction of the corresponding vibration arm and to integrally connecting portions of the vibration arm separated by the groove in the width direction.

9. (Cancelled)

10. (Previously Presented) Electronic equipment utilizing a piezoelectric device that accommodates a piezoelectric vibration piece, the piezoelectric vibration piece comprising:

a pair of vibration arms laterally extending from a base;

a groove with a bottom that is provided in each of the vibration arms, the groove extending in a length direction of the corresponding vibration arm; and

a support member provided to cross the groove in a width direction of the corresponding vibration arm and integrally connecting portions of the vibration arm separated by the groove in the width direction,

wherein upon vibration of the piezoelectric vibration piece, a clock signal is derived.

11. (Previously Presented) A piezoelectric vibration piece comprising:

a base;

at least one vibration arm formed of a piezoelectric material and extending from the base;

the vibration arm including:

a first surface having a first groove formed therein; and

a second surface opposite the first surface, the second surface having a second groove formed therein; and

a support member spanning each of the first and second grooves;

wherein a bottom of each of the first and second grooves extends substantially orthogonally relative to the support member and is connected to the support member by an integral member angling therebetween and traversing a width of the grooves.

12. (Previously Presented) The piezoelectric vibration piece according to claim 11, wherein:

the vibration arms have an arm width in a range from 50 μm to 150 μm ; and

a depth of the grooves is in a range of 30 - 50 percent of a thickness of each of the vibration arms.

13. (Previously Presented) The piezoelectric vibration piece according to Claim 11, wherein a width of each groove provided in the vibration arms is at least 40 percent of an arm width of the corresponding vibration arm.

14. (Previously Presented) The piezoelectric vibration piece according to Claim 11, wherein a width of the grooves provided in the vibration arms is at least 70 percent of an arm width of the corresponding vibration arm.